

ABSTRACT

A projection exposure apparatus for microlithography has a light source, an illumination system, a mask-positioning system and a projection lens. The latter has a system aperture plane and an image plane and contains at least one lens that is made of a material which has a
5 birefringence dependent on the transmission angle. The exposure apparatus further has an optical element, which has a position-dependent polarization-rotating effect or a position-dependent birefringence. This element, which is provided close to a pupil plane of the projection exposure apparatus, compensates at least partially for the birefringent effects produced in the image plane by the at least one lens.